











ANNUAL REGISTER

OF THE

UNITED STATES NAVAL ACADEMY

AT

ANNAPOLIS, MD.,

FOR

THE ACADEMIC YEAR 1870-'71.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1871.



NAVAL SCHOOL.

FOUNDED OCTOBER 10, 1845.

JAMES K. POLK, President of the United States. GEORGE BANCROFT, Secretary of the Navy.

The Naval School was reorganized on the 1st July, 1850, under the title of Naval Academy, as a school of theoretical and practical science. At that time the course of instruction was materially enlarged, and the institution was placed under the supervision of the Chief of the Bureau of Ordnance and Hydrography.

In October, 1851, the present course of instruction of four years was adopted.

On the establishment of the Bureau of Navigation, (July 5, 1862,) the Academy was placed under its supervision.

March 1, 1867, it was placed under the direct care and supervision of the Secretary of the Navy, and its departmental administrative routine and financial management conducted through the Bureau of Navigation in the Navy Department.

Since March 11, 1869, it has been under the direct care and supervision of the Secretary of the Navy.

BOARD OF VISITORS.

The following named gentlemen were invited by the Hon. Secretary of the Navy to attend the examination of the midshipmen of the Naval Academy in May, 1870:

Rear-Admiral HENRY K. HOFF, U. S. N., President.

Colonel and Brevet Brigadier General THOMAS G. PITCHER, U. S. A.

THOMAS CADWALLADER, of New Jersey.

STANLEY G. TROTT, of South Carolina.

Commodore ALEXANDER M. PENNOCK, U. S. N.

JOHN R. BARTLETT, of Rhode Island.

Professor H. B. WILSON, of Minnesota.

Lieutenant Colonel and Brevet Brigadier General WM. F. RAYNOLDS, U. S. A.

Captain WILLIAM REYNOLDS, U. S. N.

Paymaster George F. CUTTER, U. S. N.

Chief Engineer WILLIAM W. W. WOOD, U. S. N.

PAUL DILLINGHAM, of Vermont.

Surgeon JOSEPH BEALE, U. S. N.

EXTRACT FROM THE REGULATIONS OF THE NAVAL ACADEMY,

CHAP. VI, SEC. 9.—The Secretary of the Navy will, when expedient, annually invite not less than seven persons, such as he may judge well qualified, to attend at the Academy during the May examination as a Board of Visitors, for the purpose of witnessing the examination of the graduating and other classes, and of examining into the state of the police, discipline, and general management of the institution: the result of which examination they will report to the Secretary of the Navy.

ACADEMIC BOARD.

JOHN L. WORDEN, Commodore, President. SAMUEL P. CARTER, Captain Commandant of Midshipmen, Head of Depart-

ment of Seamanship, Gunnery, Naval and

Infantry Tactics, &c.

JOSEPH S. SKERRETT, Commander ... Assistant to Commandant of Midshipmen, in charge of Department of Seamanship, &c.

AUGUSTUS P. COOKE, Commander ... Assistant to Commandant of Midshipmen, in charge of Department of Gunnery, &c.

AUTHUR R. YATES, Lieut. Com'r ... Assistant to Commandant of Midshipmen, and Assistant Instructor in Seamanship, &c.

HENRY L. HOWISON, Lieut. Com'r ... Assistant to Commandant of Midshipmen, in Executive Duty in charge of Vessels.

THOMAS L. SWANN, Lieut. Com'r..... Head of Department of Ethics and English Studies.

OFFICERS OF THE NAVAL ACADEMY.

Commodore JOHN L. WORDEN, Superintendent.

Commander JOSEPH S. SKERRETT Assistant to Commandant of Midshipmen and

ment of Seamanship, Gunnery, Naval and

Infantry Tactics, Sec.

Commender Joseph II S. SKERKEIT	Senior Instructor in Scamanship, Naval Tac- tics, Naval Construction, &c.
Lieut. Com'r ARTHUR R. YATES)	
Lieut. Com'r OLIVER A. BATCHELLER.	Assistants to Commandant of Midshipmen and
Lieut. Com'r SILAS. W. TERRY	Assistant Instructors in Seamanship, Naval
Lieut. Com'r AUGUSTUS G. KELLOGG	Tactics, Naval Construction, &c.
Lieutenant THOMAS P. WILSON	Tuches, that at construction, ge.
Ass't Naval Const'r THEO, D. WILSON	
Commander AUGUSTUS P. COOKE	Assistant to Commandant of Midshipmen and Senior Instructor in Naval Gunnery, In- fantry Tactics, and Howitzer Drill.
Lieut. Com'r GEORGE W. HAYWARD)	janing Lacites, and Livates Dritte
Lieut. Com'r WILLIAM R. BRIDGMAN.	Assistants to Commandant of Midshipmen and
Lieut. Com'r CHARLES W. TRACY	Assistant Instructors in Naval Gunnery, In-
Lieut. Com'r NICOL LUDLOW.	fantry Tactics, and Howitzer Drill.
Lieut, Com'r HENRY L. HOWISON	Assistant to Commandant of Midshipmen, Ex-
	ecutive Duty in charge of Practice Vessels, &c.
Lieut. Com'r SULLIVAN D. AMES)	
Lieut, Com'r GEORGE D. B. GLIDDEN.	
Lieut, Com'r CHARLES F. SCHMITZ	
Lieut, Com'r EDWIN WHITE	Assistants to Commandant of Midshipmen in
Lieut. Com'r GEORGE W. PIGMAN	Executive Duty.
Lieutenant GEORGE TALCOTT	
Lieutenant GEORGE A. BICKNELL	
MATHEM	LATICS.
RICHARD S. SMITH, Professor	. Head of Department.
EDWARD N. KELLOGG, Lient. Com'r)	
CHARLES McGREGOR, Lient. Com'r	
HENRY C. TAYLOR, Lieut, Com'r	
ALLEN D. BROWN, Lieut. Com'r	Assistant Instructors in Mathematics.
WM. W. HENDRICKSON, Lieut. Com'r	
FRANCIS A. COOK, Lieut. Com'r	
JOHN C. KENNETT, Lieut. Com'r	

JOHN M. RICE, Professor

STEAM ENGINERY.

HENRY L. SNYDER, Chief Engineer Head of Department. GEORGE W. ROCHE, 1st Ass't Eng'r... JOSEPH B. UPHAM, 1st Ass't Eng'r THEODORE COOPER, 1st Ass't Eng'r... JOHN C. KAFER, 2d Ass't Eng'r...... \ Assistant Instructors in Steam Enginery. CHARLES H. MANNING, 2d Ass't Eng'r.. WILLIAM A. MINTZER, 2d Ass't Eng'r... ROBERT CRAWFORD, 2d Ass't Eng'r... ASTRONOMY, NAVIGATION, ETC. CHARLES J. TRAIN, Lieut. Com'r..... tion. Sec. GUSTAVUS V. MENZIES, Lieut. Com'r... NATURAL AND EXPERIMENTAL PHILOSOPHY. WILLIAM T. SAMPSON, Lieut. Com'r..... Head of Department. GEORGE P. RYAN, Lieut Com'r JOHN PEMBERTON, 2d Asst. Eng'r.... DAVENPORT FISHER, Professor..... CHARLES F. JOHNSON, Ass't Professor. ETHICS AND ENGLISH STUDIES. THOMAS L. SWANN, Lieut. Com'r....... Head of Department. CHARLES E. CLARK, Lieut. Com'r....) Assistant Instructors in Ethics and English EDWARD M. STEDMAN, Lieut. Com'r... Studies. JOHN C. SOLEY, Lieutenant..... FRANCIS H. SHEPPARD, Lieutenant... WILLIAM W. FAY..... JOHN J. ARCHER..... Studies. CHARLES E. HILL FRENCH. EDWARD Y. McCAULEY, Commander.... Head of Department. LEOPOLD V. DOVILLIERS, Professor.... Assistant Instructor in French. ALPHONSE V. S. COURCELLE..... LUCIEN F. PRUD'HOMME JULES LEROUX..... BERNARD MAURICE....

DRAWING.

CHARLES D. SIGSBEE, Lieut. Com'r.... In charge of Department.

NATURAL HISTORY, ETC.

HENRY H. LOOCKWOOD, Professor..... Head of Department of Natural History and Mineralogy.

ART OF DEFENSE.

	ANTOINE J. CORBESIER	. Sword Master.
27 27	ADOLPHE AUBRY)
and and	JEAN B. RETZ	Assistant Sword Masters.
12.4	ADOLPHE AUBRY JEAN B. RETZ MATTHEW STROHM	. Boxing Master and Gymnast.

	MATTHEW STROTTED	ymno
	OFFICERS NOT ATTACHED TO THE ACADEMIC ST	CAFF.
1	Commander JAMES A. GREER, U. S. N In charge of Grounds,	S.c.
	EDWARD SHIPPENSurgeon.	
	DANIEL McMURTRIE Passed Assistant Surg	eon.
i	JAMES M. FLINT	eon.
	JOSEPH TAYLOR Acting Assistant Surge	
	CALVIN C. JACKSON Paymaster.	
ı	CURTIS H. THOMPSON	
	JAMES HOY, JR	er.)
	DONALD McLAREN	
	RICHARD SWANN	
	JAMES J. GRAFF	
	RICHARD M. CHASE	
	OWEN D. ROBB	
	JAMES TILTON Second Clerk.	

	JOHN SOUTHWICK Carpenter,	
	JACOB W. BOGERT	

Officers attached to the following vessels:

CONSTITUTION-(SECOND RATE.)

Lieutenant Commander HENRY L. HOWISON, in charge of ressels. Paymaster—Worthington Goldsborough. Chaplain—Henry B. Hibben. Mates—Joseph Rodgers, William G. Smith, Roscoe V. Wickes, and Thomas W. Bonsall.

GUNNERY-SHIP SANTEE-(SECOND RATE.)

Mates-Robert Robinson, Lewis M. Melcher.

PRACTICE-SHIP MARION-(FOURTH RATE.)

Boatswain—Thomas Bennett. Mate—Robert Silver.

PRACTICE-SHIP DALE—(FOURTH RATE.)

Mate-Charles J. Murphy.

AMPHITRITE—(IRON-CLAD, THIRD RATE.)

First Assistant Engineer John Borthwick, U. S. N., in charge of machinery aftoat. Mate-William J. Best.

PHLOX-(STEAM TENDER.)

Mate Benjamin G. Perry, in charge.

Mate-Lewis Burns.

SCHOONER AMERICA.

MARINE BARRACKS.

Captain PHILIP R. FENDALL, U. S. M. C., Commanding. First Lieutenant JAMES M. T. YOUNG, U. S. M. C. Second Lieutenant WILLIAM K. McSHERRY, U. S. M. C. Second Lieutenant WILLIAM B. SLACK, U. S. M. C.

CADET-MIDSHIPMEN ON PROBATION AT THE NAVAL ACADEMY,

ARRANGED

IN ORDER OF MERIT IN THEIR RESPECTIVE CLASSES,

AS DETERMINED AT THE

GENERAL EXAMINATION IN MAY, 1870.

TOGETHER WITH

THE CADET-MIDSHIPMEN ADMITTED IN JUNE AND SEPTEMBER, 1870, FORMING THE FOURTH CLASS OF 1870-71.

MIDSHIPMEN ON PROBATION AT THE NAVAL ACADEMY. First Class—Graduating Class of 1870—68 Members.

Notes.—Cadet-Midshipmen whose names are marked (*) are the five most distinguished in their respective classes. Those marked (i) were found deficient, but to respective classes on condition of passing at a reframination. Those marked thus (‡) were found deficient, and recommended for discharge.

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	NAME.		Sidney A. Staunton Charles Terrell	Albert A. Crandall	Chauncey Thomas	Aibert J. Dahney	William M. Irwin	Frank W. Nabor	Henry H. Barroll James C. Cresan	Carlos G. Calkins	winishi r. Clason Joseph L. Hunsicker	Edward F. Qualtrongh	William H. E. Masser	Unristopher Brans Henry McCrea	Benjamin C. Tillinghast.	Gustavns C. Hanns	William P. Elliot	John E. Roller	Frederic H. Lefavor	Frank B. Veazie William E Sowell	Heorge L. Selden	William C. Babcock	reorge A. Vail

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Fourth Class-87 Members-1870.-Continued.

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SUMMARY.

Academic Year 1869 and 1870 concluded June 7, 1870.

First, or Graduating Class 68 members 68 members 68 members 68 members 68 members 63 members 63 members 63 members 63 members 63 members 63 members 64 members	KED
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Alphabetical list of cadet-midshipmen, one hundred in number, admitted in June and September, forming the fourth class of 1870-771.

Name.	State.	Date of ad-	of adı	at da nissio
2,442,7	2000	mission.	Years	M'nt
inslow Allderdice	Virginia	June 17, 1870	16	
vman Arms	Michigan	Sept. 24, 1870	16	
inton J. Axson	Louisiana	Sept. 22, 1870	17	
enry C. Benaghlward D. Bostick	Alabama South Carolina	Sept. 20, 1870 Sept. 24, 1870	17 17	
ifford J Boush	Virginia	June 20, 1870	15	
hn M. Bowyer	Iowa	Sept. 28, 1870	17	
seph G. Brackenridge	Indiana	June 23, 1870	17	
eriah Brown gederick S. Brown	Oregon	Sept. 28, 1870 Sept. 28, 1870	14 17	
mes Bryden	Texas	Sept. 30, 1870	15	
rdelio S. Carter.	Illinois	Sept. 29, 1870	17	
narles M. Carrow	Pennsylvania		17	
ohn F. Cheek Tillie G. Clark	IndianaAt large	June 24, 1870 June 28, 1870	14 16	
rederick W. Coffin	Massachusetts	June 15, 1870	17	
illiam K. Coleman	Ohio	Sept. 21, 1870	16	
hn C. Colwell	At large	Sept. 22, 1870	14	
arence A. Corbin	Michigan	Sept. 26, 1870 June 6, 1870	17 17	
rydon F. Craig.	At large	June 6, 1870	15	
lward J. Dorn	Missouri	Sept. 21, 1870	16	
obert M. Doyle	Tennessee	Sept. 21, 1870	16	
illiam T. Duttoneorge T. Emmons	Vermont	June 4, 1870	17 17	
eadley A. Fiske	At large	June 4, 1870 Sept. 22, 1870	16	
ank F. Fletcher	Iowa	Sept. 22, 1870	14	
ician Flynne	Texas	Sept. 22, 1870	15	
lward C. Fuller	Ohio	Sept. 27, 1870	17	
lgar H. Gaitherwis W. Gibson	Kentucky Dakota	Sept. 30, 1870 Sept. 21, 1870	17 16	
seph A. Gillett	Massachusetts	Sept. 20, 1870	15	
fred L. Hall.	Ohio	Sept. 26, 1870	16	
illiam H. Hallowell	Pennsylvania	Oct. 8, 1870	17	
lwin F. Hard illiam G. Harrington	New York At large	Sept. 29, 1870 June 20, 1870	17 15	
ederick L. Hartmann	New York	Sept. 16, 1870	17	
rederick L. Hartmann	Iowa	June 23, 1870	16	
arry M. Hodges	Illinois	Sept. 29, 1870	15 17	
rank H. Holmes	California Pennsylvania	June 29, 1870 Sept. 28, 1870	16	
alter S. Hughes.	Iowa	Sept. 24, 1870	17	
narles Hull	Mississippi	Sept. 22, 1870	16	
enry J. Huntdgely Hunt	At large Louisiana	June 23, 1870 Sept. 20, 1870	15 16	*
amilton Hutchins	New Hampshire	June 23, 1870	15	
eorge E. Hutter	Virginia	June 21, 1870	17	
agustus E. Jardine	At large	Sept. 21, 1870	15	
orge H. Jones	New York Virginia	Sept. 26, 1870 July 9, 1870	16 17	
obert P. Kinney	Virginia	Sept. 26, 1870	16	
narles Laird	Ohio	Sept. 28, 1870	16	
arry R. Lewis	California	Sept. 21, 1870	15 16	
naries M McCartney	Pennsylvania Illinois	Sept. 20, 1870 Sept. 29, 1870	17	
ilken C. McDowell	Pennsylvania	June 29, 1870	16	
illiam & MaCinnia	Illinois	June 24, 1870	16	
orge K. McGunnegle enry P. Moorman mes S. Negley hn C. Nichols	At large Kentucky	Sept. 21, 1870 Sept. 20, 1870	16 16	
mes S Negley	Pennsylvania	June 30, 1870	16	
hn C. Nichols	Massachusetts	Sept. 20, 1870	15	
	Pennsylvania	Sept. 20, 1870	16	
arner II. Nostrandilliam C. Oliver	New York Tennessee	Sept. 23, 1870 Sept. 20, 1870	17 17	
osea A. Osgood	Massachusetts	Sept. 20, 1870	17.	
hn F. Parker	Ohio	Sept. 29, 1870	17	
avid Peacock	New Jersey	Sept. 27, 1870 Oct. 18, 1870	16 17	
unuel M. Peacock	Kentucky North Carolina	Oct. 6, 1870	16	
eorge H. Peters	Pennsylvania	June 23, 1870	15	
ephen A. Powers	Indiana	Sept. 28, 1870	17	
ho H W Ragan	Maryland	June 21, 1870 Sept. 20, 1870	16 16	
lmund G. Ray enry F. Reich illiam V. W. Reily	Pennsylvania	Sept. 27, 1870 Sept. 22, 1870	17	
		Sept. 22, 1870 June 21, 1870	16	

Alphabetical list of cadet-midshipmen, one hundred in number, admitted, &c.—Continued.

Name.	State.	Date of admission.	of adr	at date nission.
Matthew G. Reynolds William R. A. Rooney Bernard O. Scott Alexander Sharp, jr John W. Stewart George Stoney. Joseph S. Strader John R. Tennison John C. Thomas Richard H. Townley William H. Turner James V. Turner George J. Wanless. Arthur J. Ward Samuel W. Watkins George B. Way Albert Wegmann Henry F. Wells. Hunter C. White William E. Whitfield Thomas C. Whitehead Edward A. Whipple Allen W. Wills Cameron M. Winslow	Missouri Pennsylvania Alabama District Columbia Indiana. Alabama New York Arkansas Virginia Nebraska At large At large Washington Ter Virginia Wisconsin Maryland New York New York New York New York New York New Ork New York New Ork New York New York Arkansas. North Carolina At large Pennsylvania At large	June 29, 1870 Sept. 28, 1879 Sept. 29, 1870 Sept. 22, 1870 Sept. 22, 1870 Sept. 21, 1870 Sept. 21, 1870 June 20, 1870 June 20, 1870 June 20, 1870 June 28, 1870 Sept. 28, 1870 Sept. 30, 1870 Sept. 30, 1870 Sept. 30, 1870 Sept. 28, 1870 June 21, 1870 Sept. 29, 1870 June 21, 1870 Sept. 20, 1870 Sept. 22, 1870	15 16 14 17 17 16 17 16 17 16 15 15 16 15 16 17 16	10 8 5 7 4 4 11 11 10 8 4 4 4 0 9 9 9 2 6 6 11 10 5 5 10 10 10 10 10 10 10 10 10 10 10 10 10

SUMMARY.

Academic year 1870-'71, begun October 1, 1870.

First class Second class Third class. Fourth class, (appointments of 1870 and transfers from 1869).	36 members. 49 members.
Total	246

Received for instruction, under a resolution of the Senate and House of Representatives of the United States, approved July 27, 1868.

Name.	Country of which a resident.	Received into the academy.
Zun Zow Matzmulla	Empire of Japan	December 8, 1869.
Ise Sataro	Empire of Japan	December 8, 1869.

CALENDAR-1870-'71.

	187	0.		
J	une	20	.—Examination of candidates for admission began	Monday.
J	une	30	.—Examination of candidates concluded	Thursday.
J	uly	4	.—Holiday	Monday.
S	ept.	20	.—Examination of candidates for admission began	Tuesday.
S	ept.	30	.—Examination of candidates concluded	Friday.
0	ct.	1	.—First term began	Saturday.
N	ov.	24	.—Thanksgiving; studies, recitations and exercises suspended	Thursday.
D	ec.	25	.—Christmas	Sunday.
	187	1.		
J	an.	1	.—New Year	Sunday.
J	an.	2	.—The first observed; studies, recitations and exercises suspended.	Monday.
J	an.	23	.—Semi-annual examination begins	Monday.
J	an.	31	—Semi-annual examination and first term ends	Tuesday.
F	eb.	1	.—Second term begins.	Wednesday.
F	eb.	22	—Studies, recitations and exercises suspended	Wednesday.
M	lay	20	—Annual examination begins	Saturday.
J.	une	10	—Annual examination and second term ends	Saturday.

PRACTICE CRUISE-1871.

1871-'72.	
June 5.—Examination of candidates for admission begins	Monday.
June 30.—Examination of candidates for admission ends	Friday.
Sept. 20.—Examination of candidates for admission begins	Wednesday.
Sept. 30.—Examination of candidates for admission ends	Saturday.
Oct 1—First term begins	Sunday.

COURSE OF INSTRUCTION.

The studies which shall be pursued and the instruction which shall be given at the Naval Academy are comprised under the following departments and branches:

FIRST DEPARTMENT—PRACTICAL SEAMANSHIP, NAVAL GUNNERY, AND NAVAL AND INFANTRY TACTICS.

First branch—Practical seamanship.—Mode of constructing, docking, and undocking vessels, and of heaving them down for examination and repair; preparations for, and stowage of, ballast, water, provisions, ammunition, sails, and other stores; getting of board and fitting in place masts, yards, rigging, sails, armament, boats, and all other articles of equipment, and arrangements for removing the same when a ship is to b dismantled; berthing the crew, and stationing the ship's company for various duties if working ship; unmooring ship; getting under way; anchoring and mooring; mode of using springs in the different cases to which they may be advantageously applied keeping a ship from fouling her anchor; clearing hawse; practical use of the lead and of the helm; steering, tacking, wearing; making and shortening sail in different kind of weather, and in different situations; backing and filling in a tideway; warping; heav ing to and preserving relative position with other vessels when lying-to; chasing to windward and to leeward; closing with other vessels soonest, or avoiding them for the greatest length of time; towing one or more vessels, under all circumstances of weather when towing is practicable; management of vessels and boats to save men who have fallen overboard, or to rescue persons from vessels at sea, when the sea is rough and dangerous; boarding vessels at sea; examination of ship's papers; landing in a heav surf; watering and provisioning from an open beach; management of a vessel on he beam ends; also, when one or more masts are lost in a gale or in action; and wher rudder is lost, or in danger from leaks in a gale at sea, or in imminent danger of soon foundering, or on fire at sea or in port; rules for avoiding collisions; rules of the road and lights to be carried by vessels, as established by act of Congress.

Second branch—Theory and practice of gunnery—Practical naval gunnery.—The nomen clature of different parts of ships' guns, and of the different carriages which are used in the navy; and also the several uses, and the names of all articles belonging to o used with guns and carriages in action; component parts of gunpowder and mode of manufacture, and different means by which its strength and other qualities are or mabe ascertained; mode of inspecting and proving guns, shot, and shells, for their recep tion from the makers; windage; manner of loading, fusing, and boxing shells, and o unloading them; testing quality and regulating length of fuses; arrangement of ship? magazines, shell, and shot rooms; dimensions of cartridge-bags, and mode of making them; weight of charges of powder for different calibers and distances; manner of fit ting and using locks and tangent and dispart sights; necessity for guarding powder shells, fuses, and all articles of which gunpowder forms a part, from moisture as wel as from fire; preparation of a ship for action; stations and duties of men at guns o different calibers, in the different divisions, when preparing for quarters or action exercise of the guns, and all the duties of those stationed at them in action; modes o ascertaining distances from vessels and other objects at sea; advantages of direct and of ricochet firing under different circumstances; ranges of different projectiles from dif ferent calibers and classes of guns; different modes of taking guns on board and send

ing them from vessels; of mounting and dismounting and transporting them; shifting carriages, breechings, and trucks; securing guns in heavy gales; managing and securing a gun that has got loose from breeching and tackles; means of gaining greater safe elevation and depression than carriages ordinarily afford; injurious effects of double shotting upon the recoil and safety of the gun, and upon the projectiles, as to the accuracy of their direction and the extent of their range for penetration; arrangements for boarding and repelling boarders; different calls and signals used in action.

Furthermore, the use of boat and field guns; their nomenclature, weight, calibers, character, and construction, including the carriages with which they are used for boat and shore service; preparation of boats for their use; exercise when used in boats and when on shore; embarking them in boats from vessels; equipment for service against merchantmen, boats, or for shore service; mode of landing and embarking from the shore; construction and preparation, for immediate use, of the shrapnel and other shells, and of grape, and the regulation of the length of fuses; adaptation of the different kinds of projectile for service, according to distance, cover, and the character of the objects of attack; returning armament and equipments to the vessel, and disposition to be made of them on so doing.

Theory of gunnery.—Review of laws of motion, of projectiles in vacuo and in the atmosphere; initial, remaining, and final velocities, and the methods of determining their values; the effects on them by variations of charge, windage, and weight of projectiles; forces of deviation, arising from the motion of rotation and eccentricity of projectiles, from inclination of the axis of the trunnions, and from other causes; examination of the several systems or modes of pointing; tangent sights, and determination of their values; penetration and shock of projectiles, when used against wood, earth, or stone, and with direct and ricochet fire; recoil, and how affected by preponderance and position of trunnions in relation to axis of the gun.

Third branch—Naval tactics.—The different orders of steaming and sailing fleets, divisions, and squadrons, to be observed for battle and for other purposes; modes of forming such orders; of changing from one order to another; of reforming orders when disturbed by changes of wind; of interchanging and changing the position of different squadrons or divisions forming parts of a fleet; advantages of the different prescribed orders for general or special service; the leading objects to be kept in view in the arrangement of vessels of different strength or force for lines of battle, and in determining upon the manner of making or receiving an attack at sea and at anchor; examination of the best accounts of fleet actions; consideration of the advantages or defects of the plans of attack and defense, and of the execution of the details by the commanders of fleets, divisions, squadrons, and vessels; mode of communication by signals, embracing the naval code, the army code, and the commercial code.

Fourth branch—Infantry tactics.—Organization and formation of squad, company, and battalion; facing and wheeling; marching in line and by flank, and filing; manual of small arms; firing; charging; forming column in mass at half and at full distance, and reforming into line; extension and closing of column; column of route; reducing and increasing front; passage of defiles; advancing and retreating by flank, center, and in line; passage of obstacles; changes of front; forming and reducing square; exercise as skirmishers.

Fifth branch—Naval artillery.—School of the piece and school of the battery.

Sixth branch—The art of defense.—Fencing, small and broad sword; boxing and swimming.

Seventh branch—Naval construction.—Elements of naval architecture.

SECOND DEPARTMENT-MATHEMATICS.

First branch—A review of arithmetic.—The principles and practice of operations in whole numbers and in vulgar and decimal fractions; proportions; computation of percentage and interest; involution and evolution of numbers.

Algebra.—Fundamental operations; reduction and solution of equations of the first

and second degrees; reduction and transformation of fractional and surd quantities; proportions and progressions; summation of series; nature and construction of logarithms.

Second branch-Geometry.-Plane and solid.

Third branch—Trigonometry.—Analytical investigation of trigonometrical formulas, and their application to the solution of all the cases in plane and spherical trigonometry; the construction and use of trigonometrical tables.

Fourth branch—Application of algebra and trigonometry to the mensuration of planes and solids.

Fifth branch—Descriptive geometry.—(The graphic illustration and solution of problems in solid geometry, and the application of this method, particularly to) the projections of the sphere.

Sixth branch—Analytical geometry.—Construction of algebraic expressions; solution of determinate problems; equations of the right line, plane and conic sections; [discussion of the general equations of the second degree, involving two or three variables; determination of loci; principal problems relating to the cylinder, cone, sphere, and spheroids.]

Seventh branch—[Differential and integral calculus.—Its principles and its application to maxima and minima, and the simpler problems relating to curves.]

THIRD DEPARTMENT-STEAM ENGINERY.

First branch—Mechanical drawing.—Application of right-line drawing and descriptive geometry to the making of drawings of marine steam machinery after construction.

Second branch—Heat.—Application of heat to steam, and the operation and conservation of marine engines and boilers.

Third branch—Steam.—Physical properties of water; method of generating steam; boiling points of fresh and sea water; measure of steam by atmospheres and mercurial column; steam distinguished from other elastic fluids; pressure, density, and temperature of steam; superheated steam; forms of instruments used to determine temperature and pressure of steam.

Fourth branch—Marine boilers.—General description of marine boilers—their peculiarities; details of construction; advantages and disadvantages of each type; methods of operating; appurtenances and instruments used in connection with marine boilers to determine their efficiency; means used for their proper care and preservation; economy of fuel and prevention of smoke.

Fifth branch—Marine engines.—General description of marine steam-engines now in use—condensing and non-condensing; elementary parts of the steam-engine; engines used for marine propulsion in the navy—advantages and disadvantages of each; detail parts of a marine engine—their use and conservation; different types of paddle-wheels and screw propellers; comparative efficiency of each for naval purposes; method of hoisting and coupling the screw and paddle-wheel—radial and feathering; duties to steam machinery when at sea and in port; repairing damages during and after an action; precautions against fire and spontaneous combustion, bad weather, and probability of an engagement; routine duties of the fire and engine rooms when under steam; coal bunkers and coaling ship; hints regarding selection of coal on foreign stations.

Sixth branch—Practical exercises.—Practical exercises; operating marine engines and boilers under steam; use of indicator and interpretation of its diagrams; practical observation of the methods of adjustment, and means used to insure the safety and preservation of marine machinery.

Seventh branch—Chemistry.—The practical application of chemistry to the combustion of fuel; corrosion of the metals; analysis of different kinds of fuel, sea water, boiler scale, lubricating matter, and illuminating oils.

This branch will be taught by lectures and experiment when marine boilers and engines are under discussion.

FOURTH DEPARTMENT-ASTRONOMY, NAVIGATION, AND SURVEYING.

First branch—Astronomy.—Descriptive and physical astronomy; description of the solar system; figure and magnitude of the earth, its motions and consequent changes of seasons; length of day and night; trade and periodical winds; nature and effects of parallax, refraction, dip of the horizon, precession, nutation and aberration; theory of gravitation; Kepler's laws; explanation of the apparent motions of the sun, moon, planets, and comets, and the principles upon which the determination of their orbits depends; the moon's motions and phases; general theory of the tides; theory of eclipses; general description of the stars, and their distribution in space; measures of time; equation of time.

Second branch—Practical astronomy.—Including the use of astronomical instruments in determining the positions of celestial objects, and terrestrial latitudes and longitudes; optical principles involved in the construction of astronomical instruments, and in the theory of astronomical refraction. [Calculation of eclipses and occultations.]

Third branch—Navigation.—Sailing by compass; sailing on a great circle; various methods for finding a ship's place at sea; construction and use of charts, including topographical and hydrographic drawing; principles and use of the sextant and circle of reflection, and application of the glass prism to these instruments; the artificial horizon; the azimuth compass; methods of ascertaining the deviation of the compass, produced by local attraction on shipboard; the log, and other instruments for determining a ship's rate of sailing; sounding instruments; nature and use of the Nautical Almanac; relations of time under different meridians; computation of altitudes and azimuths of celestial objects; finding, by means of amplitudes and azimuths, the variations of the compass; finding the latitude by meridian observations of the sun, moon, planets, and stars; by observations near the meridian, by single altitudes at a given time, and by two altitudes of the same or different objects; finding the longitude by the chronometer, by lunar distances and by altitudes of the moon; Sumner's method of finding a line of position, and determining the ship's place by two such lines; rating a chronometer on shore by single altitudes, and by equal altitudes; and finding its error at sea by a series of lunar observations. Theory of the various problems of navigation and nautical astronomy, and the application of spherical trigonometry to their solution; [consideration of the true figure of the earth, and the corrections in nautical problems depending upon it.]

Fourth branch—Surveying.—Its principles and practice; measurement of heights and distances; leveling; trigonometrical surveying; hydrographical surveying; direct measurement of a base line; measurement by sound; running lines of soundings; reduction for tides; survey of a harbor or river; fixing the position of shoals, &c.; running survey of a coast; [geodetic corrections in extended surveys;] application of

astronomical observations for azimuth, latitude, and longitude.

FIFTH DEPARTMENT-NATURAL AND EXPERIMENTAL PHILOSOPHY.

First branch—Mechanics of solids.—Forces and equilibrium; composition and resolution of forces; uniform and varied motion; motion of projectiles in vacuo, and in a resisting medium; center of gravity; equilibrium of a system of bodies; motion of translation of a body or system; motion and equilibrium about an axis; central forces; falling bodies; pendulum and ballistic pendulum; laws of the planetary motions; effect of friction and adhesion, and of stiffness of cordage; mechanical powers; collision of bodies.

Second branch—Mechanics of liquids.—Mechanical properties of fluids; laws of equilibrium and pressure; flotation of bodies; stability and oscillation of floating bodies; specific gravity; [motion of liquids.]

Third branch—Mechanics of aëriform fluids.—Air-pump; weight and pressure of the atmosphere; laws of pressure; density and temperature; barometer; pumps; syphon; motion of elastic fluids.

Fourth branch—Acoustics.—Theory of waves in general; velocity of sound in different media; [molecular displacement; interference of waves;] reflection and echo; speaking and hearing trumpets; [vibrations of strings, of columns of air, and of plates and bells; communication of vibrations.]

Fifth branch—Optics.—General properties of light; catoptrics; dioptrics; chromatics; vision; optical instruments; [physical optics.]

Sixth branch—Electricity.—Statical electricity; voltaic electricity; magnetism; electro-magnetism; thermo-electricity.

Seventh branch—Heat.—Conditions of heat; characteristics of heat; theories of heat, ancient and modern; sources of heat, conduction, radiation, and convection; specific heat; sensible and insensible caloric; effects of heat; instruments used for the measurement of heat; thermo-dynamics.

Eighth branch—Chemistry.—(To be taught by familiar lectures and experiments.) Ninth branch—Meteorology and climatology.

SIXTH DEPARTMENT-ETHICS AND ENGLISH STUDIES.

First branch—English grammar.—Orthography; etymology; the analysis and synthesis of sentences; idioms; punctuation.

Second branch—Descriptive geography.—Knowledge of the land and water surface; the grand divisions of the earth, and their relative situation; extent and boundaries of the several countries in each of the grand divisions; their natural productions; their commerce, manufactures, and governments; their naval and military strength. The use of globes and maps.

Third branch—Physical geography.—The form and motions of the earth; the seasons and climates; the distribution of land and water; mountain ranges; declivities and basins; desert and lake zones; river systems; the currents of the ocean; geographical distribution of plants and animals; influence of physical causes on man.

Fourth branch—Outlines of history.—Ancient and modern; in the latter, mainly that of America, England, France, and Spain, during the last three centuries; written biographical and historical exercises.

Fifth branch—Rhetoric.—Verbal criticism; the principles of taste, and their application; original compositions, embracing official reports.

Sixth branch—Ethics.—The ground of moral obligation; our relations to God, and consequent duties; personal duties; the chief relations of men to each other in society, and the duties thence arising. (To be taught by means of familiar lectures, given by the chaplain.)

Seventh branch—Political science.—A review of the origin and structure of the Federal Government of the United States of America; its constitutional law; the acts of Congress for the better government of the Navy; the law of nations generally; the rights and duties of nations in peace and in war.

SEVENTH DEPARTMENT-FRENCH.

Reading and writing the French language correctly; exercises in speaking it.

EIGHTH DEPARTMENT-SPANISH.

Reading and writing the Spanish language correctly; exercises in speaking it.

NINTH DEPARTMENT-DRAWING.

Right-line drawing, sketching, and prospective; topographical and chart drawing.

The foregoing studies shall be distributed into four annual courses, and the midshipmen shall be arranged in four classes, each class pursuing one of these courses.

LETTER TO CANDIDATES.

NAVY DEPARTMENT, Washington, January 31, 1863.

Application having been made on your behalf for admission to the United States Naval Academy, you will find in the inclosed permit a statement of the requisite qualifications for admission. Should you, on examination, show a fair proficiency in the branches of knowledge there indicated, and comply with the other conditions, you will be received as a midshipman, and become then ceforward an officer of the Navy of the United States. So great is the importance of this step, not merely to yourself but to the public, that the Secretary deems it a fit occasion to call your attention to the obligations which you assume in this new and honorable character.

You will bear in mind, then, that the Government, in receiving you into its Naval Academy, undertakes to furnish you, at the public expense, with a superior scientific and practical education, under the instruction of thoroughly-accomplished teachers. This is a privilege which, in the nature of things, can fall to the lot of but a small portion of the youth of the country, and it is one which, in all probability, many of the pupils of the Academy would otherwise not enjoy. It is, however, but the smallest part of what the Government does for you. In admitting you to the Academy it secures to you an adequate provision, in a most honorable calling, for your future support, of which, while you live, nothing but incapacity or misconduct can deprive you. This great benefit, however, is not conferred on the pupils of the Naval Academy from any favoritism to them, but from great public motives. In the present state of the world the safety and honor of a country require that a portion of the young men should be regularly educated and trained in the science and art of war. This is necessary in both arms of the service, but peculiarly so in the Navy. There are several instances in the land service of brilliant success on the part of chieftains who first entered the field in middle life; but the instances are much less frequent of distinguished naval commanders who did not commence their preparation in youth. This is the important reason for which the country has called the pupils of the Academy from their homes, and conferred upon them the above-mentioned enviable privileges.

You must, therefore, bear constantly in mind that these privileges, great as they are, are trusts for which the country will hold you strictly accountable. Henceforward your time is not your own; it belongs to the public. The Government takes you into its service in your youth because your preparation for the active duties of your career cannot be safely delayed to more advanced years. So much scientific, mechanical, and practical knowledge must be acquired, that nothing short of diligent application, commenced in early life, will enable the faithful officer to obtain a thorough mastery of his profession. It is a great error to suppose that nothing is necessary to make a good officer but the physical courage required in time of action, and which is, to some extent, a natural gift. This, of course, is indispensable; but it is one only of the qualifications for the service. Beginning at the foundation, the thorough-bred naval officer must know something of ship-building, alike in wood and iron; not that he needs the knowledge of the naval architect, but he must be able to judge of the work both of construction and repair, and be competent to provide a prompt remedy for disasters at sea. He must be intimately acquainted with the rig, equipment, and handling of his vessel; must understand the navigation of the ocean by sails and steam; be familiar with the great currents of the sea and of the atmosphere; and have an accurate knowledge of the principal ports and harbors in every quarter of the globe. He must be thoroughly versed in every variety of naval armament, ordnance, and ammunition—a field of knowledge of which the limits have been greatly enlarged of late years, and in which still further advances are in rapid progress. Thus prepared in the lower branches of his profession, he must, by experience gradually acquired on a small scale, and by diligent study of the lives and exploits of illustrious commanders, learn, as far as it can be learned in this way, not only how single ships are fought, but how great fleets are maneuvered and led to glorious victories.

To attain these great ends, abstract science and mechanical art furnish but the lower instruments. Moral influences must lend their all-powerful aid. Beginning with the arduous task of self-government, of which the habit must be acquired by cheerful conformity to the discipline of the Academy and the subordination of the service, the accomplished officer must learn the great art of governing others over whom he may be placed in the public service. He must learn the lesson of command in the school of obedience. A fractious and intractable pupil, if he succeed in obtaining promotion, will be nearly sure to make an arbitrary and tyrannical officer. Treated, as you will be, with parental kindness at the Academy, nothing that you will learn there is more important than the art of gaining the confidence and winning the affection of those whom you may hereafter command. The officer who acquires the good will of his men by kind words and deeds will be far more successful in enforcing the necessarily strict discipline of a man-of-war than one who deals in rough language, oaths, and harsh treatment. It is related of a distinguished British naval officer, (Lord Collingwood,) that the most refractory seamen were transferred to his vessel from all the other ships in the fleet, not because his discipline was the most severe, but because it was at once the most gentle and the most efficacious.

The duties thus enumerated, numerous and important as they are, are not all that devolve on the naval officer. In addition to the skill appropriately belonging to his profession, it is necessary that his manners should be marked with courtesy and refinement, and that his mind should be amply stored with useful knowledge. In the service of a great naval power, he will, on foreign stations, often be called upon to appear as the representative of his Government. He will be brought into contact with the naval commanders of other countries, and sometimes with personages of the highest rank and consequence. On these occasions the good name and consideration of his country are, to some extent, in his hands. Still more, he will sometimes be obliged, with little opportunity for deliberation, and no time to consult his Government, to decide important questions of the law of nations. It is evident that the most momentous consequences may flow from the degree of intelligence with which he may act on such occasions.

These are the reasons for which the country calls a select number of her children, in the morning of their days, to enter her naval service. The common parent of all, she bestows upon them these enviable advantages in order to fit them for the various and arduous duties to which I have alluded. The young officer, accordingly, when he enters the Naval Academy, becomes the pledged servant of the country-of the whole country-bound by the strongest ties of duty and gratitude to serve her with fidelity and zeal. He is henceforward an officer, not of the State in which he was born or in which he resides, but of the United States of America. He may have been born at the East or the West, the North or the South, but his allegiance is due to the Union—to the Government which has educated him, which has commissioned him, and which he has solemnly sworn to defend. Wheresoever the voice of duty or lawful authority may call him, there he will cheerfully hasten to sustain the honor of his country's flag, to protect her lawful commerce, to combat her enemies. It may be his duty to risk, perhaps to sacrifice, his life, like the naval heroes who shed undying glory on the American Navy in the last generation, in open war against a legitimate foe; or to follow a piratical sea-rover, meanly fitted out by foreign cupidity for the work of devastation and plunder; or to pass weary days and nights in watching the ports of rebels in arms against their country; or to launch the terrific thunders of his broadsides on their fortresses; whatever the duty may be, it will be diligently, zealously, and heroically performed.

The character of the struggle in which the Government and loyal people of the country have been engaged gives a peculiar significance to these considerations; nor can the Secretary forbear to allude to the all-important services which were rendered by the Navy during that contest. The outbreak of the rebellion found this arm of the service on a peace establishment, its squadrons widely dispersed; some of its most important home stations situated in the seceding States, and soon seized—too often with treacherous connivance—and passed into rebel hands. Enfeebled as the Navy was by these causes, and still further by the necessary sacrifice of vessels to prevent them from falling into the hands of the enemy; compelled to call into the service with urgent haste a numerous fleet of vessels not constructed for warlike purposes; above all, obliged, without previous preparation, to inaugurate a novel system of armature, the Navy performed its herculean labors with an energy and success that reflect the highest credit on all belonging to it, officers and men, and which the Secretary takes great pleasure in holding up to the emulation of the young men at the Academy, who will hereafter be called upon to sustain the well-earned reputation of this branch of the service.

Especially let the young men now entering the Navy impress upon their minds, as the great lesson of the day, that of all the duties of a faithful officer, the first and foremost is that of fidelity to his flag-the sacred symbol of the Government which has trained him to its defense and confided its honor to his keeping. Let him, as he sets his foot on the threshold of the Academy, form the firm resolve, living or dying, to be faithful to that great trust. Let him, in advance, steel his mind against the wretched sophistry under the influence of which a portion of the naval officers in the rebellious States, (but by no means all of them,) deceived and misled, against their own better impulses, by the craft of politicians, have allowed themselves to raise a parricidal arm against their country, employing the fruits of the education received at its expense, and of the experience gained in its service, in aid of an unprovoked and cruel rebellion. Before he enters on actual service, the young officer takes a solemn oath "to support, protect, and defend the Constitution of the United States against all enemies, whether domestic or foreign;" and the Secretary would earnestly impress upon the young men, on their admission to the Naval Academy, that no human power can absolve them from that obligation. The madness of the hour may cause a misguided man to forget that he has called his God so to deal with him as he shall keep or break his oath, but the time will come, even in this world, when the sin of perjury will lie heavy on his soul.

But the Secretary is confident that no one of the young gentlemen now entering the Naval Academy, or already there, will ever incur the foul reproach of betraying the flag of the Union. They will uphold it on every sea and on every shore, by every effort and at every hazard, in the storm of the elements or the storm of battle. They will live for it and fight for it; if need be, they will bleed for it. While it floats they will stand by it, and, if it must sink, they will go down with it, rather than disgrace or betray it.

The Secretary forbears to enter into any particular statements as to the studies, exercises, and discipline of the Academy. The intelligent officer charged with the superintendence of the institution, and who possesses the entire confidence of the Department, aided by his able and efficient associates, will from time to time ca your attention to the various details of duty; and the Secretary confidently trusts that, under their guidance, you will, by the faithful improvement of your great opportunities, prepare yourself for eminent usefulness and high honor in the service of the country.

GIDEON WELLES,

Secretary of the Navy.

REGULATIONS

GOVERNING

THE ADMISSION OF CANDIDATES INTO THE NAVAL ACADEMY.

I. The number of midshipmen allowed at the Academy is one for every member and Delegate of the House of Representatives, one for the District of Columbia, ten appointed annually at large.

II. The nomination of candidates for admission from the District of Columbia, and at large, is made by the President. The nomination of a candidate from any congressional district or Territory is made on the recommendation of the member or delegate, from actual residents of his district or Territory.

III. Each year, as soon after the fifth of March as possible, members and delegates will be notified, in writing, of vacancies that may exist in their districts. If such members or delegates neglect to recommend candidates by the first of July in that year, the Secretary of the Navy is required by law to fill the vacancies existing in districts actually represented in Congress.

IV. The nomination of candidates is made annually, between the fifth of March and the first of July. Candidates who are nominated in time to enable them to reach the Academy by the fifth of June, will receive permission to present themselves at that time to the Superintendent of the Naval Academy for examination as to their qualifications for admission. Those who are nominated prior to July 1st, but not in time to attend the June examination, will be examined between the twentieth and thirtieth of September following; and should any candidate fail to report, or be found physically or mentally disqualified for admission in June, the member or delegate from whose district he was nominated will be notified to recommend another candidate, who shall be examined between the twentieth and thirtieth of September following.

V. No candidate will be admitted into the Naval Academy unless he shall have passed a satisfactory examination before the Academic Board, and is found (in the opinion of a medical board, to be composed of the Surgeon of the Naval Academy and two other medical officers designated by the Secretary of the Navy) in all respects physically sound, well formed, and of robust constitution, and qualified to endure the arduous labors of an officer in the Navy.

VI. Candidates for appointment as midshipmen must be between fourteen and eighteen years of age when examined for admission. All candidates for admission will be required to certify on honor, to their precise age, to the Academic Board, previous to examination, and none will be examined who are over or under the prescribed age. They must be of good moral character, satisfactory testimonials of which, from persons of good repute in the neighborhood of their respective residences, must be presented; and testimonials from clergymen, instructors in colleges and high schools, will have special weight. They must also pass a satisfactory examination before the Academic Board in reading, writing, spelling, arithmetic, geography, and English grammar, viz: in reading, they must read clearly and intelligibly from any English narrative work—as, for example, Bancroft's History of the United States; in viriting and spelling, they must write from dictation, in a legible hand, and spell with correctness both orally and in writing; in arithmetic, they will be examined in numeration and the addition, subtraction, multiplication, and division of whole numbers and vulgar and decimal fractions, and in proportion, or the rule of three, and show a good knowledge of the subject.

It is desirable that the board should ascertain the aptitude of a candidate in this branch of study, which if good should count in his favor in case of a slight deficiency in other branches. In geography, candidates will be examined as to the grand divisions—the continents, oceans, and seas, the chief mountains and rivers, and the boundaries and population of the chief nations, their governments, capitals, and chief cities; in English grammar, they will be examined as to the parts of speech, the rules connected therewith, and the elementary construction of sentences, and will be required to write such original paragraphs as will show that they have a proper knowledge of the subject.

The board will judge whether the proficiency of the candidate in these branches is

sufficient to qualify him to enter upon the studies of the Academy.

VII. Any one of the following conditions will be sufficient to reject a candidate: Feeble constitution; permanently impaired general health; decided cachexia; all chronic diseases, or results of injuries that would permanently impair efficiency, viz:

- 1. Infectious disorders.
- 2. Weak or disordered intellect.
- 3. Unnatural curvature of spine.
- 4. Epilepsy, or other convulsion, within five years.
- 5. Impaired vision, or chronic disease of the organs of vision.
- 6. Great permanent hardness of hearing, or chronic disease of the ears.
- 7. Loss or decay of teeth, to such an extent as to interfere with digestion and impair health.
- 8. Impediment of speech to such an extent as to impair efficiency in the performance of duty.
 - 9. Decided indications of liability to pulmonary disease.
 - 10. Permanent inefficiency of either of the extremities.
 - 11. Hernia.
 - 12. Incurable sarcocele, hydrocele, fistula, stricture, or hemorrhoids.
 - 13. Large varicose veins of lower limbs. Chronic ulcers.
- 14. Attention will also be paid to the stature of the candidate; and no one manifestly undersized for his age will be received into the Academy. In case of doubt about the physical condition of the candidate, any marked deviation from the usual standard of height will add materially to the consideration for rejection. Five feet will be the minimum height for the candidate.

15. The board will exercise a proper discretion in the application of the above conditions to each case; rejecting no candidate who is likely to be efficient in the service, and admitting no one who is likely to prove physically inefficient. No candidate rejected by the board will be allowed a reëxamination.

VIII. If both these examinations result favorably, the candidate will receive an appointment as a midshipman, become an inmate of the Academy, and be allowed his actual and necessary traveling expenses from his residence to the Naval Academy, and be required to sign articles by which he will bind himself to serve in the United States Navy eight years, (including his term of probation at the Naval Academy,) unless sooner discharged. If, on the contrary, he shall not pass both of these examinations, he will receive neither an appointment nor his traveling expenses, nor can he by law have the privilege of another examination for admission to the same class unless recommended by the Academic Board.

IX. When candidates shall have passed the required examinations, and been admitted as members of the Academy, they must immediately furnish themselves with the following articles, viz:

Two navy-blue uniform suits;

One fatigue suit;

Two navy-blue uniform caps;

One uniform overcoat;

Ten pair white pants;

Four white vests;

Six white shirts; Six pair of socks; Four pair of drawers; Six pocket handkerchiefs; One black silk handkerchief, or stock; One mattress; One pillow; One pair of blankets; One bed-cover, or spread; Two pair of sheets; Four pillow-cases; Six towels; Two pair of shoes or boots; One hair-brush; One tooth-brush; One clothes-brush;

One coarse comb for the hair; One fine comb for the hair; One tumbler or mug; and

One tumbler or mug; and One thread and needle case.

Room-mates will jointly procure, for their common use, one looking-glass, two wash-basins, one water-pail, one slop-bucket, and one broom. These articles may be obtained from the storekeeper of the Academy, of good quality and at fair prices.

X. Each midshipman must, on admission, deposit with the paymaster the sum of one hundred dollars, for which he will be credited on the books of that officer, to be expended by direction of the Superintendent for the purchase of text-books and other authorized articles besides those enumerated in the preceding article.

XI. A midshipman found deficient at any examination cannot, by law, be continued at the Academy or in the service, unless upon the recommendation of the Academic Board, and it will be useless to apply to the Secretary of the Navy, who will decline to interfere in the matter.

XII. A midshipman who voluntarily resigns his appointment within a year of the time of his admission to the Academy will be required to refund the amount paid him for traveling expenses.

GEO. M. ROBESON,
Secretary of the Navy.

ADDENDA.

The following list of prices is published for the information of parents and guardians who are not supposed to know the requirements of the Naval Academy. As these articles are of uniform pattern, it is recommended that they be purchased from the paymaster in charge of stores at the Academy, and a deposit of the amount made at the time of the admission of the candidate. *Underclothes* from home will do.

Two navy-blue uniform suits	\$86	97
One fatigue suit	13	67
Two navy-blue uniform caps	10	80
One uniform coat	23	55
Ten pair white pants	50	00
Four white vests	12	00
Six white shirts	12	90
Six pairs of socks	2	20
Four pair of drawers	4	00
Six pocket handkerchiefs	2	40
One black silk handkerchief, or stock	1	25
One mattress and cover	8	35
One pillow	1	75
One pair of blankets	4	00
One bed-cover, or spread	1	35
Two pair of sheets	4	00
Four pillow-cases	1	40
Six towels	1	80
Two pair of shoes, or boots	9	00
One hair-brush	1	00
One tooth-brush		30
One clothes-brush		80
One coarse comb for the hair		30
One fine comb for the hair		15
One tumbler, or mug		14
One thread and needle case		55

When the candidates have passed a successful examination they will be at once sent on board ships, and will not be permitted to return again to their homes during that

All the deposits for clothing, and the entrance deposit of \$100, must be made before a candidate can be received into the Academy.

For the further information of candidates for admission into the Naval Academy, it must be understood that they will be required to pass so thorough an examination in the studies prescribed in Paragraph VI that they shall prove, in that examination, their ability to proceed at once to the higher branches. They will, however, be at all times, during the academic term, subject to examination in the elementary branches.

GEO. M. ROBESON.

OFFICERS AND CADET-MIDSHIPMEN

ATTACHED TO THE

PRACTICE SHIP "SAVANNAH"-SUMMER CRUISE, 1870.

Commander SAMUEL P. CARTER, Commanding.

Licutenant Commanders—Augustus P. Cooke, Geo. W. Hayward, S. W. Terry, A. D. Brown, A. G. Kellogg, L. Clark, C. D. Sigsbee, G. D. B. Glidden. Lieutenant—W. H. Emory. Surgeon—A. Hudson. Assistant Surgeon—J. C. Wise. Paymaster—R. W. Allen. Chaplain—H. B. Hibben. Boatswain—P. J. Miller. Gunner—J. Gaskins. Sailmaker—J. A. Birdsall. Carpenter—J. L. Davis.

FIRST CLASS OF CADET-MIDSHIPMEN.

W. C. Babcock.	J. T. Edson.	F. H. Lefavor.	W. H. Slack.
A. C. Baker.	W. P. Elliott.	W. A. Marshall.	S. A. Staunton.
H. H. Barroll.	C. A. Foster.	W. H. E. Masser.	C. Terrell.
C. W. Bartlett.	J. H. Fraunces.	H. McCrea.	C. Thomas.
J. C. Burnett.	J. C. Freeman.	H. P. McIntosh.	B. C. Tillinghast.
P. Busbee.	W. S. French.	F. W. Nabor.	Geo. A. Vail.
C. G. Calkins.	C. D. Galloway.	E. F. Qualtrough.	F. B. Veazie.
W. P. Clason.	F. E. Greene.	J. E. Roller.	A. Ward.
A. H. Cobb.	F. Guertin.	Geo. A. Sanderson.	D. Whipple.
A. A. Crandall.	G. C. Hanus.	R. D. Stevens.	J. M. Wight.
J. C. Cresap.	F. S. Hotchkin.	S. Seabury.	D. L. Wilson.
A. J. Dabney.	J. L. Hunsicker.	Geo. L. Selden.	T. C. Wood-51.
J. Downes.	W. M. Irvin.	W. E. Sewell.	

THIRD CLASS.

J. E. Anderson.	J. Farnsworth.	C. B. T. Moore.	M. A. Shufeldt.
G. S. Arnold.	F. A. Fenn.	H. Morrell.	R. D. Strong.
C. J. Badger.	I. R. Fisher.	T. E. Muse.	W. A. Talbott.
J. W. Bean.	C. E. Fithiau.	J. O. Nicolson.	J. W. Turnbull.
H. S. Cannell.	G. Fowler.	R. F. Nicholson,	E. B. Underwood.
Augustus L. Case.	W. F. Halsey.	G. D. North.	J. P. Underwood.
W. N. Conet.	T. B. Howard.	H. C. Pell.	C. P. Upshur.
W. C. Cowles.	A. M. Knight.	C. F. Putnam.	Edward Vail.
F. W. Danner.	S. C. Lemly.	E. Raines.	F. A. White.
L. J. Davids.	J. S. Manley.	A. Reynolds.	F. A. Wilner.
C. W. Deering.	A. A. Michelson.	J. M. Robinson.	W. Winder.
J. K. Dexter.	F. J. Milligan.	W. H. Schuetze.	L. Young—49.
S. W. B. Diehl.			

FOURTH CLASS.

J. W. Blakely. E. B. Crocker. W. A. Northcott. H. J. Rodman-	. W. Blakely.	E. B. Crocker.	W. A. Northcott.	H. J. Rodman-
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Japanese Students.

Zun Zow Matzmulla. Ise Sataro—2. Total, 106.

Sailed June 16th; visited Plymouth, England, and Funchal, Madeira, and arrived in Annapolis Roads September 15, 1870.

COURSE OF INSTRUCTION FOR ENGINEER CLASS.

(ACTING THIRD ASSISTANTS.)

PROGRAMME.

Mechanical Drawing.—a, Elements; b, Details and plans of machines.

Physics.—a, Heat; b, Steam.

Chemistry.—a, Chemical philosophy; b, Elements; c, Analysis—qualitative and blowpipe; d, Coals, ores, and oils—lubricating and illuminating.

Thermo-dynamics.

Machines.—a, Cinematics; b, Theory of machines; c, Prime movers—Hydraulic motors, steam-engines, air-engines, electro-magnetic motors; d, Construction of machines; c, Location and erection of machines; f, Designs and estimates for, and reviews of, special machines.

Construction.—a, Plans and estimates for boiler and machine shops, foundries, smelting works, and rolling mills; b, Plans and estimates for ships' ways and slips.

Management of Machinery.—Practical exercises with steam engine and boilers.

Iron ship-building.—a, Designing and construction; b, Inspection; c, Launching and repairs.

Practical Exercises.--Personal manipulations of tools used in working woods and metals.

REGULATIONS

FOR

THE APPOINTMENT OF CADET ENGINEERS IN THE NAVY.

I. In pursuance of the third and fourth sections of an act passed at the first session of the 38th Congress, approved July 4, 1864, "To authorize the Secretary of the Navy to provide for the education of naval constructors and steam engineers, and for other purposes," and of the second section of an act passed at the first session of the 39th Congress, approved March 2, 1867, entitled "An act to amend certain acts in relation to the Navy," applications will be received by the Navy Department for the appointment of cadet engineers.

II. The application is to be addressed to the Secretary of the Navy, and can be made by the candidate or by any person for him, and his name will be placed on the register. The registry of a name, however, gives no assurance of an appointment, and no prefer-

ence will be given in the selection to priority of application.

III. The number of cadet engineers is limited by law to fifty. The candidate must be not less than eighteen nor more than twenty-two years of age, and his application must be accompanied by satisfactory evidence of moral character and health, with information regarding date of birth and educational advantages hitherto enjoyed. Candidates who receive permission will present themselves to the Superintendent of the Naval Academy between the 20th and 30th of September, for examination as to their qualifications for admission.

IV. The course of study will comprise two academic years. All cadets who graduate will be immediately warranted as third assistant engineers in the Navy. The pay of a cadet is the same as that of midshipmen.

V. The academic examination previous to appointment will be on the following subjects, namely: Arithmetic; the candidate will be examined in numeration and the addition, subtraction, multiplication, and division of whole numbers, and of vulgar and decimal fractions; in reduction; in proportion, or rule of three, direct and inverse; and in involution and the extraction of square and cube roots. Algebra, (Bourdon;) Geometry, (Davies's Legendre;) Rudimentary Natural Philosophy; Elements of Inorganic Chemistry; English Grammar and English Composition; History of the United States; also, a brief outline of Ancient and Modern History. The candidate will also be required to exhibit a fair degree of proficiency in pencil sketching and right-line drawing, and he must be able to describe all the different parts of ordinary condensing and non-condensing engines, explain their uses and operation; also, the ordinary tools used for construction purposes.

VI. Any one of the following conditions will be sufficient to reject a candidate:

Feeble constitution; permanently impaired general health; decided cachexia; all chronic diseases, or results of injuries that would permanently impair efficiency, viz:

- 1. Infectious disorders.
- 2. Weak or disordered intellect.
- 3. Unnatural curvature of spine.
- 4. Epilepsy, or other convulsion, within five years.
- 5. Chronic impaired vision, or chronic diseases of the organs of vision.
- 6. Great permanent hardness of hearing, or chronic disease of the ears.
- 7. Loss or decay of teeth to such an extent as to interfere with digestion and impair health.

- 8. Impediment of speech to such an extent as to impair efficiency in the performance of duty.
 - 9. Decided indications of liability to pulmonary disease.
 - 10. Permanent inefficiency of either of the extremities.
 - 11. Hernia.
 - 12. Incurable sarcocele, hydrocele, fistula, stricture, or hemorrhoids.
 - 13. Large varicose veins of lower limbs. Chronic ulcers.
- 14. Attention will also be paid to the stature of the candidate; and no one manifestly undersized for his age will be received into the Academy. In case of doubt about the physical condition of the candidate, any marked deviation from the usual standard of height will add materially to the consideration for rejection.

15. The Board will exercise a proper discretion in the application of the above conditions to each case; rejecting no candidate who is likely to be efficient in the service, and admitting no one who is likely to prove physically inefficient.

VII. If both these examinations result favorably, the candidate will receive an appointment as a cadet engineer, become an inmate of the Academy, and be allowed his actual and necessary traveling expenses from his residence to the Naval Academy, and be required to sign articles by which he will bind himself to serve in the United States Navy six years, (including his term of probation at the Naval Academy,) unless sooner discharged. If, on the contrary, he shall not pass both of these examinations, he will receive neither an appointment nor his traveling expenses, nor can he have the privilege of another examination for admission to the same class unless recommended by the Board of Examiners.

VIII. When candidates shall have passed the required examinations and been admitted as members of the Academy, they must immediately furnish themselves with the following articles, viz:

One navy-blue uniform suit;

One fatigue suit:

One navy-blue uniform cap;

One uniform overcoat:

Six white shirts:

Six pair of socks;

Four pair of drawers;

Six pocket handkerchiefs;
One black silk handkerchief, or stock;

One mattress;

One pillow;

One pair of blankets;

One bed-cover or spread;

Two pair of sheets;

Four pillow-cases;

Six towels;

Two pair of shoes or boots;

One hair-brush;

One tooth-brush:

One clothes-brush:

One coarse comb for the hair;

One fine comb for the hair;

One tumbler, or mug; and

One thread and needle case.

Room-mates will jointly procure, for their common use, one looking-glass, one wash-basin, one water-pail, one slop-bucket, and one broom. These articles may be obtained from the storekeeper of the Academy, of good quality and at fair prices.

IX. Each cadet engineer must, on admission, deposit with the paymaster the sum of seventy-five dollars, for which he will be credited on the books of that officer, to be expended by direction of the Superintendent for the purchase of text-books and other authorized articles besides those enumerated in the preceding article.

X. While at the Academy the cadets will be examined, from time to time, according to the regulations prescribed by the Navy Department; and if found deficient at any examination, or dismissed for misconduct, they cannot, by law, be continued in the Academy or naval service, except upon recommendation of the Academic Board.

XI. A cadet engineer who voluntarily resigns his appointment will be required to refund the amount paid him for traveling expenses.

GEO. M. ROBESON,

Secretary of the Navy.

FOR

CADET ENGINEERS AT THE UNITED STATES NAVAL ACADEMY.

MATHEMATICAL COURSE.

FIRST YEAR-FIRST TERM.

First branch—Trigonometry.—Analytical investigation of trigonometrical formulas, and their application to the solution of all the cases in plane trigonometry; the construction and use of trigonometrical tables.

Second branch—Application of algebra and trigonometry to the mensuration of planes and solids.

FIRST YEAR—SECOND TERM.

Third branch—Analytical geometry.—Construction of algebraic expressions; solution of determinate problems; equations of the right line, plane, and conic sections, (discussion of the general equations of the second degree, involving two or three variables; determination of loci; principal problems relating to the cylinder, cone, sphere, and spheroids.)

SECOND YEAR-FIRST TERM.

Fourth branch—(Differential and integral calculus.—Its principles, and its application to maxima and minima, and simpler problems relating to curves.)

Note.—The examination for admission will require a very thorough knowledge of Bourdon's Algebra as far as the general theory of equation; also, of Davies's Legendre and mensuration.

Those who pass a satisfactory examination for admission, and can show proficiency in the more advanced studies of the department, will be assigned corresponding positions in the course. Those who show a sufficient acquaintance with *all* the mathematical branches taught at this institution, will at once be excused from further instruction in this department.

NAVAL ENGINEERING.

Mechanical Drawing.—a, Elements; b, Details and plans of machines.

Physics.—a, Heat; b, Steam.

Chemistry.—a, Chemical Philosophy; b, Elements; c, Analysis—qualitative and blowpipe; d, Coals, Ores, and Oils—lubricating and illuminating.

Thermo-dynamics.

Machines.—a, Cinematics; b, Theory of machines; c, Prime movers—Hydraulic motors, Steam engines, Air engines, Electro-magnetic motors; d, Construction of machines; e, Location and erection of machines; f, Designs and estimates for, and reviews of, special machines.

Construction.—a, Plans and estimates for boiler and machine shops, founderies, smelting works, and rolling mills; b, Plans and estimates for ships' ways and slips.

Management of machinery.—Practical exercises with steam engines and boilers.

Iron ship-building.—a, Designing and construction; b, Inspection; c, Launching and repairs.

Practical exercises.—Personal manipulation of tools used in working woods and metals.

FRENCH.

Reading and writing the French language correctly; exercises in speaking it.

SPANISH.

Reading and writing the Spanish language correctly; exercises in speaking it.

NON-PROFESSIONAL PRACTICAL EXERCISES.

Fencing and gymnastics.

RESIGNATIONS, DISMISSALS, ETC.,

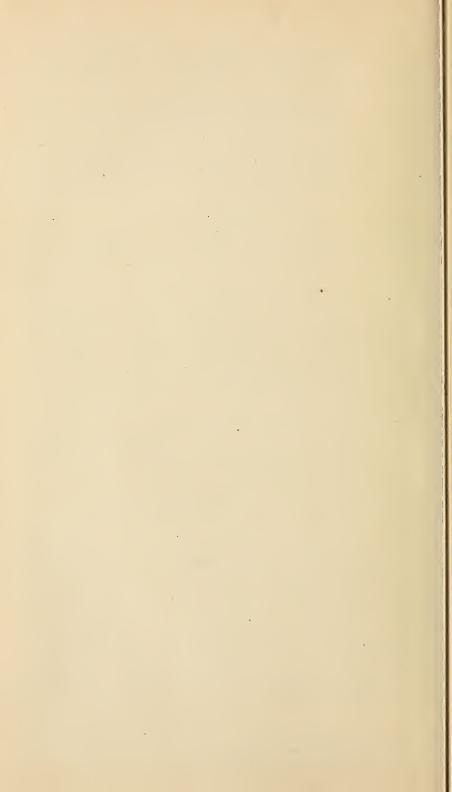
FROM

OCTOBER 1, 1869, TO SEPTEMBER 30, 1870, INCLUSIVE.

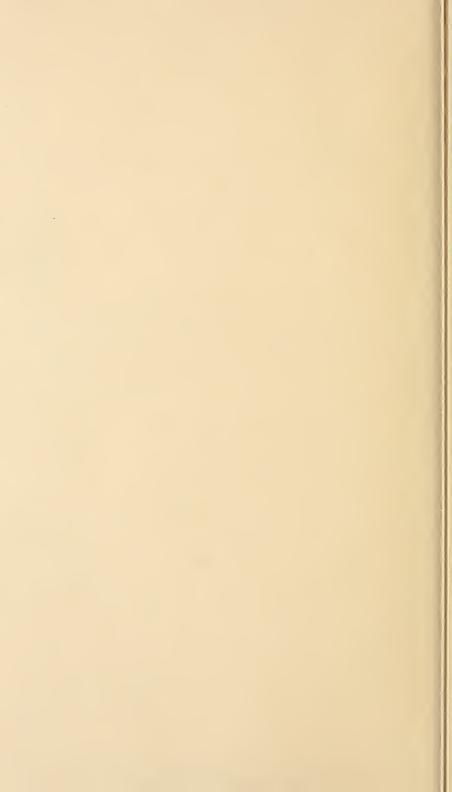
RESIGNATIONS.

Midshipman James P. NortonOct.	4,	1869.		
Midshipman James L. Carter Oct.	27,	1869.		
Midshipman Frank H. Powers	4,	1869.		
Midshipman Frank Pierson	25,	1869.		
Midshipman Harrison C. FalesJan.	7,	1870.		
Midshipman William F. Shaw Feb.	11,	1870.		
Midshipman Robert S. Graham	30,	1870.		
Midshipman William M. Slough	30,	1870.		
Midshipman Benjamin B. Scott	3,	1870.		
Midshipman John Y. Oliver	31,	1870.		
Midshipman Clinton J. AxsonJune	10,	1870.		
Midshipman Edward L. BakerJune	10,	1870.		
Midshipman Charles J. BrennerJune	10,	1870.		
Midshipman Richard W. BurnsJune	10,	1870.		
Midshipman William H. CraigJune	10,	1870.		
Midshipman Isaac B. CulpJune	10,	1870.		
Midshipman Isaac B. ElliottJune	10,	1870.		
Midshipman Charles V. GrantJune	10,	1870.		
Midshipman Horatio W. GreenoughJune	10,	1870.		
Midshipman William GundlachJune				
Midshipman Richard P. HabershamJune				
Midshipman Edwin F. HardJune				
Midshipman Charles F. HolderJune				
Midshipman George W. HydeJune				
Midshipman Jones M. JacksonJune	10,	1870.		
Midshipman John P. JohnsonJune				
Midshipman James S. JonettJune	10,	1870.		
Midshipman Charles LairdJune				
Midshipman Charles M. McCartneyJune				
Midshipman William McKelvyJune				
Midshipman James S. NegleyJune	10,	1870.		
Midshipızan David PeacockJune	10,	1870.		
Midshipman Edmund G. RayJune	10,	1870.		
Midshipman John F. RobbJune				
Midshipman Irving SmithJune				
Midshipman William V. B. ToppingJune				
Midshipman Charles A. WallingfordJune	10,	1870.		
Midshipman George B. WayJune	10,	1870.		
DISMISSALS, ETC.				
Midshipman Frank T. Jenkins, droppedMar.	17,	1870.		
Midshipman Charles H. Crosswait, droppedJune	8,	1870.		
	- '			

Midshipman Germaine B. Vandervoort, droppedJune 8, 1870.

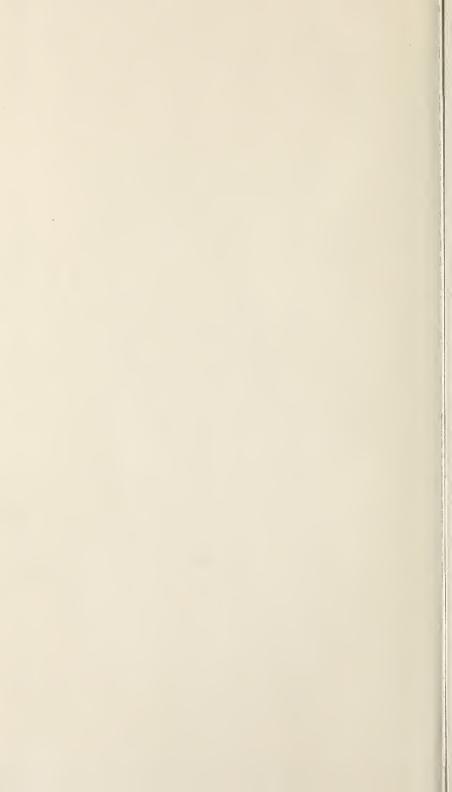
















Annual register 1870-1871

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